

SERVICE
MANUAL

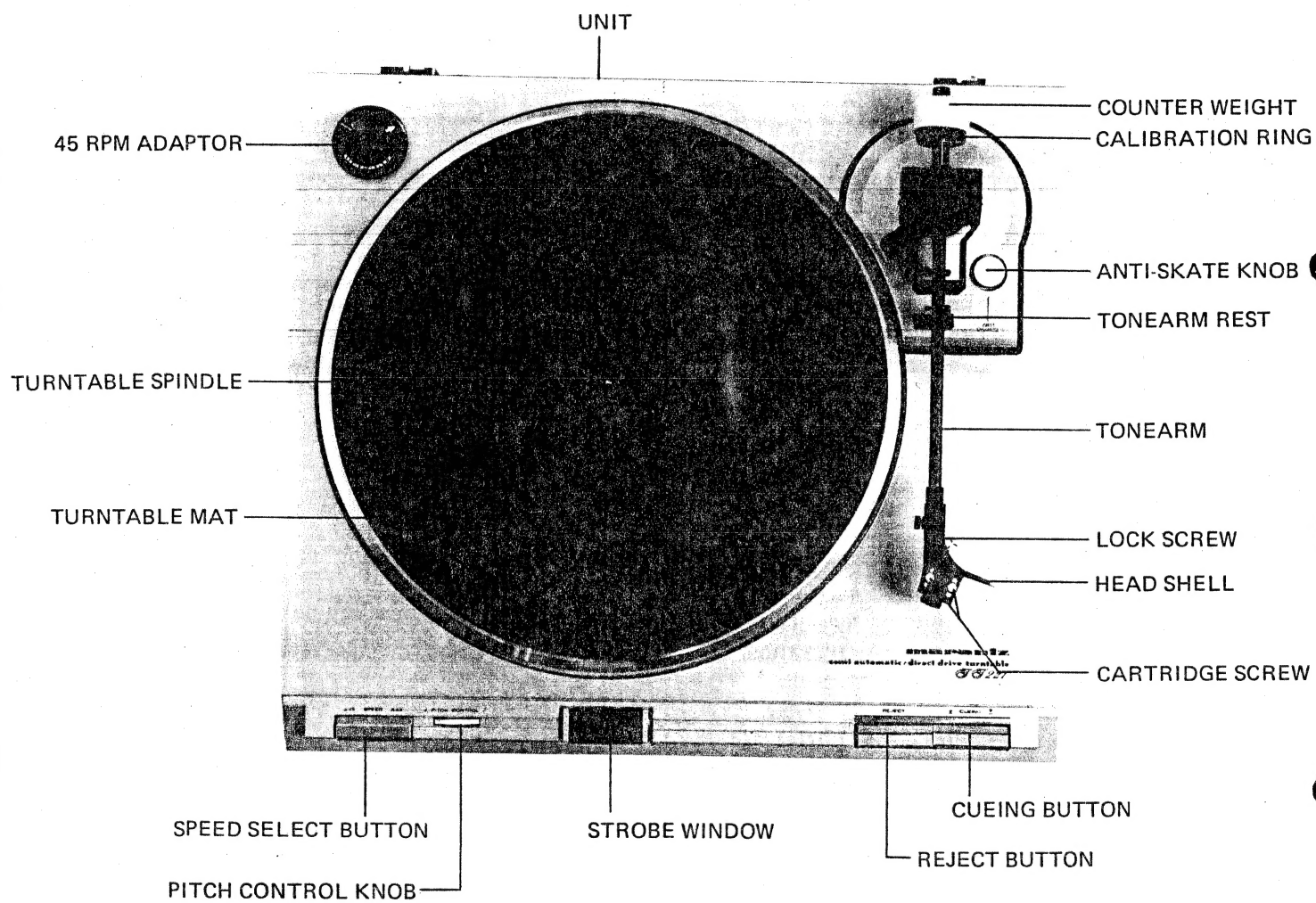
TT 221

marantz

Model TT 221

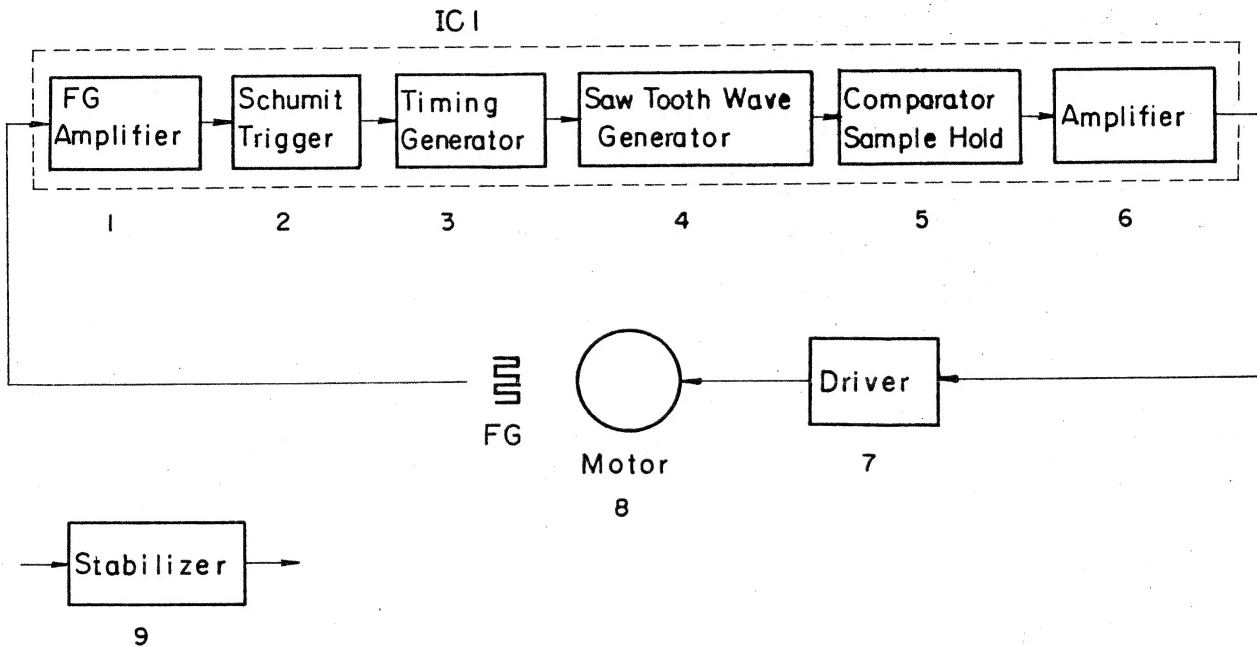
Turntable

DESIGNATION OF PARTS



PRINCIPLE OF OPERATION FOR MOTOR

1. BLOCK DIAGRAM



1) FG Amplifier

FG generator is consist of a rotor which is dually magnetized 8-pole and 160-pole, and all round integrated type FG pattern.

And it generates sine wave of 44.44 Hz at 33-1/3 rpm and 60.00 Hz at 45 rpm. The signals from FG are amplified up to level of threshold voltage of schmit trigger.

2) Schmitt Trigger

To convert sine wave from FG amplifier to square wave.

3) Timing Generator

To divide square wave from schmit trigger and generate timing pulse by means of bottom portion of its wave form for RESET, SET and SAMPLE of saw tooth wave.

4) Saw Tooth Wave Generator

To convert timing pulse to saw tooth wave by means of charge and discharge of capacitor or resistor.

5) Comparator, Sample Holder

To sample voltage of saw tooth wave by timing pulse and hold the voltage level, and also compare reference voltage and holded voltage by means of differential circuit.

6) Amplifier(DC)

To amplify output voltage of comparator.

7) Driver

To detect location of polarity magnetized on rotor by means of hole element and select the order of current to feed to 4-pole driving coil.

The voltage applied to coil is controlled by the servo circuit stipulated in the above item No. 1) - 2), which controls rotor speed.

8) Motor

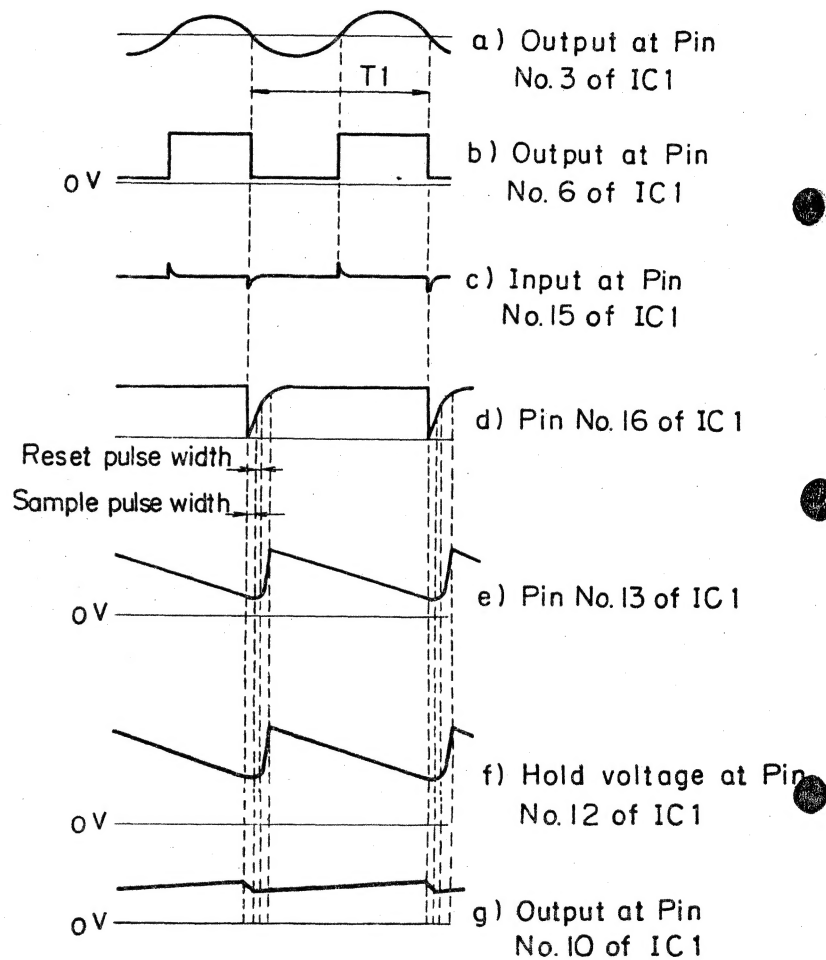
Coreless, slotless and flat type motor with 4-phase, half wave driving system.

9) Stabilizer

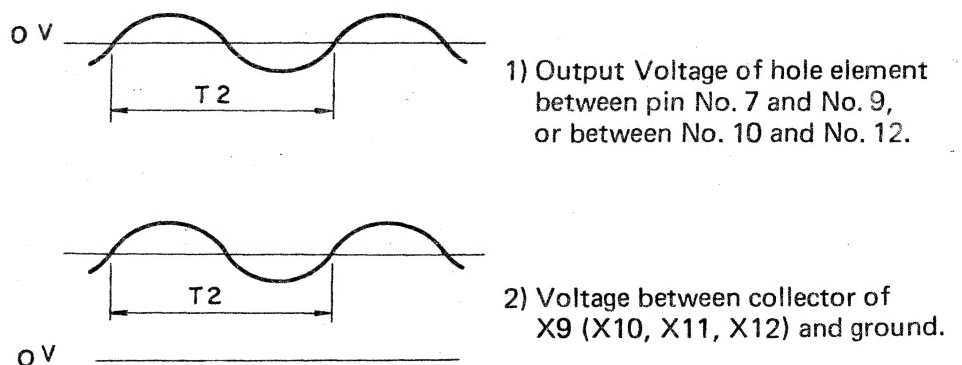
To stabilized insdie voltage of IC.

2. TIMING CHART

2-1. Control Section



2-2. Driving Section

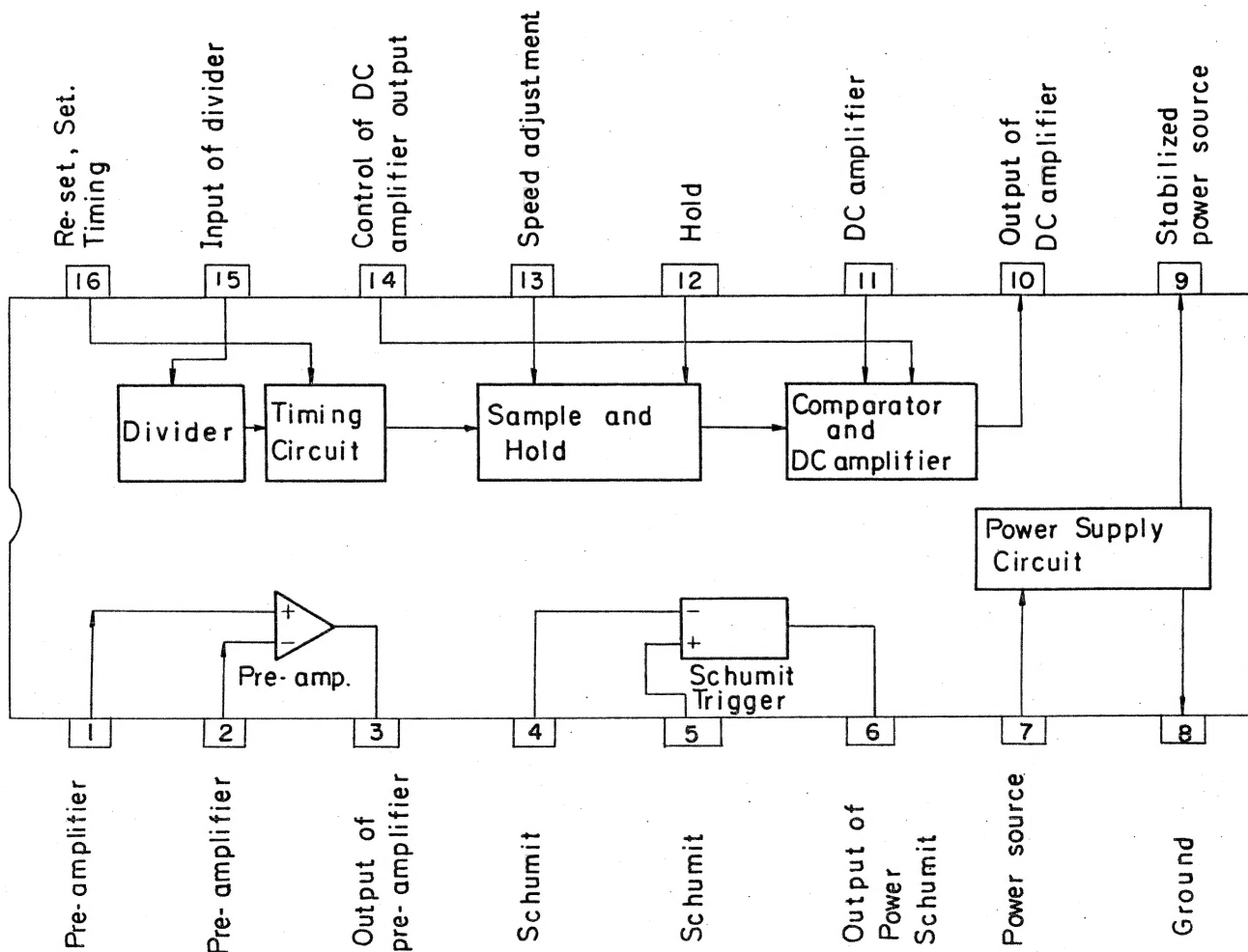


3. ALIGNMENT METHOD

3-1. Speed alignment

- 1) Set changeover switch to 45 rpm.
- 2) Set potentiometer (pitch control) to its center.
- 3) Set speed to 45 rpm by means of adjusting VR1 (100 K ohm).
- 4) Set speed changeover switch to 33-1/3 rpm.
- 5) Set speed to 33-1/3 rpm by means of adjusting VR2 (100 K ohm).

4. BLOCK DIAGRAM OF IC1 (JPC1043)



5. ALIGNMENT-ADJUSTMENTS

This service manual was prepared for qualified technicians familiar with Turntable maintenance and alignment procedure. Review complete adjustment sections before proceeding.

Cartridge Wire Color Code

Before installing a cartridge to the headshell, the wires should be connected to the cartridge. The cartridge or its technical sheet will identify the connection pins. It may be necessary to slightly compress the terminal clips on the headshell wires with your fingers to firm the contact area to the pins. Below is the headshell color-description.

Headshell Wires:

Right Channel Hot	Red
Right Channel Ground	Green
Left Channel Hot	White
Left Channel Ground	Blue

After wire connections are made, install cartridge mounting screws, provided with the cartridge, through the mounting slots and tighten firmly enough to hold the cartridge in place. Final adjustments are made after the overhang dimension is adjusted.

A Stylus overhang adjustment

A 45 RPM adaptor is supplied with the TT221 turntable that will be used for adjusting the overhang dimension. An arrow is marked on the 45 RPM ADAPTOR, and a gradient scale from 11 through 18.

1. Place the adaptor on the spindle with the arrow pointing towards the rear of the turntable. Gradient scale will be in the lower half quadrant when viewed from the front.
2. Remove stylus protective cover and balance the tone arm. Place the tone arm to the gradient scale and set stylus contact to gradient 15 mm on the 45 RPM ADAPTOR. Set the cartridge screws after checking that the cartridge is parallel to the sides of the headshell.

B. Stylus tracking force adjustment

1. Remove stylus protective cover. Adjust the counterweight until tone arm is capable of being suspended in midair without movement.
2. Set the counterweight dial to zero.
3. Rotate the counterweight towards the pivot point to the manufacturers specified cartridge tracking force.
4. Adjust the anti-skate control to the same force as the stylus tracking force.

C. Pitch-verification

1. Verify that the platter pitch control can be adjusted nominally from $\pm 3.5\%$ in both 45 and 33.3 RPM Modes.
2. Monitor that pitch control stabilizes Dot Patterns on the Platter. If adjustment is necessary, proceed to trouble shooting chart pitch adjustments.

D. Auto-return adjustment

If the Tone Arm returns before the end of the record program or delays to lift at end of record program, the sending arm can be adjusted as follows.

REFER TO FIGURE (1)

1. To slightly delay tone arm return, adjust the fine adjustment screw clockwise.
 2. To slightly advance tone arm return, adjust the fine adjustment screw counterclockwise.
 3. When larger deviations are necessary, return fine adjustment screw to the middle of its travel.
 4. Loosen the feed arm securing screws and adjust the tolerance between the actuating arm and feed-arm ass'y to 7 mm (.276 in.).
- FIGURE (1)
5. Fine adjust tone arm return by repeating steps one or two, where applicable.

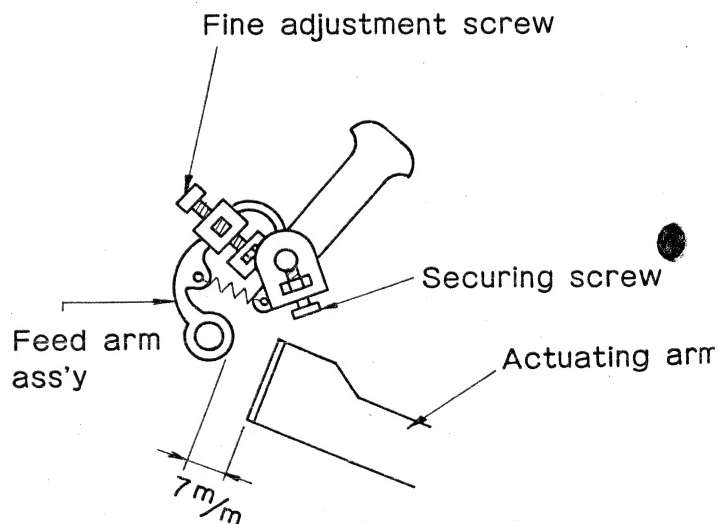


Fig. 1

6. TROUBLE SHOOTING

Symptom	Cause	Repair
When the tonearm is placed on a record face, the turntable does not rotate.	<ol style="list-style-type: none"> No current flows because of poor contact of the micro switch. Lead wire disconnection. 	<ol style="list-style-type: none"> Replace the old micro switch with a new one. Check wiring continuity.
When the tonearm returns on the arm rest, the turntable does not stop its rotation. When the reject button is depressed, the tonearm does not return.	<ol style="list-style-type: none"> Too wide gap between the micro-switch and the feed arm. Uncorrect wiring of the micro-switch. No operation of the clutch plate and clutch guide. Improper mesh between the main gear and the turntable spindle gear. 	<ol style="list-style-type: none"> Adjust the gap to 0.3-0.6 mm. Modify the wiring according to the wiring diagram. Check the interlocking transmission mechanism of the reject button, and reject spring. <ol style="list-style-type: none"> Check the gear gap. Check if the turntable spindle gear is positioned in the center of the notch of the main gear.
When the tonearm returns during playing a record.	<ol style="list-style-type: none"> Inclined record player with its left side down. Deviated feed arm (The feed arm deviated toward the center of the turntable) 	<ol style="list-style-type: none"> Place the record player horizontally. Adjust the position of the feed arm properly.
When the stylus stays in the same groove.	<ol style="list-style-type: none"> Improper stylus force (Too light stylus force) Caught tonearm lead wires. Foreign matter between the clutch plate and the clutch guide. 	<ol style="list-style-type: none"> Adjust stylus force. Arrange the lead wires properly. Remove the foreign matter.
When record playing is over, the tonearm does not return.	Deviated position of the feed arm (The feed arm deviates toward the direction opposite from the center of the turntable spindle)	Adjust the position of the feed arm.
When large impact sound is heard on the return of the tonearm.	<ol style="list-style-type: none"> Improper mesh between the turntable gear and the main gear. Improper fly-out of the clutch plate or deformed engagement part of the clutch plate. 	<ol style="list-style-type: none"> <ol style="list-style-type: none"> Check a gap between the turntable spindle gear and the main gear. Check if the clutch plate flies out until it strikes the side face of the turntable spindle gear. If not so, check and remove foreign matter between the clutch plate and the clutch guide or between the actuating arm and the mechanism base. Check the shape of the ejected part of the turntable spindle gear, (Figure 2).
When the tonearm returns, the stylus scratches a record face.	<ol style="list-style-type: none"> Excessively pitched up records. Improperly adjusted stylus height. 	<ol style="list-style-type: none"> Remove all record. Note: Place only one record on the turntable. Adjust the stylus height.
When electrical output does not come out from the record player.	<ol style="list-style-type: none"> Improperly soldered tonearm lead wires to the 5P terminal strip. Defective transmission path. Defective cartridge. 	<ol style="list-style-type: none"> Check the soldered parts concerned. Check the continuity of the transmission path. Replace the old cartridge with a new one.

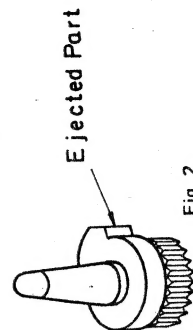


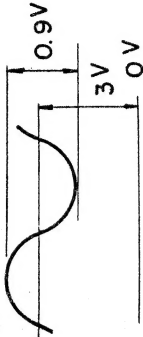
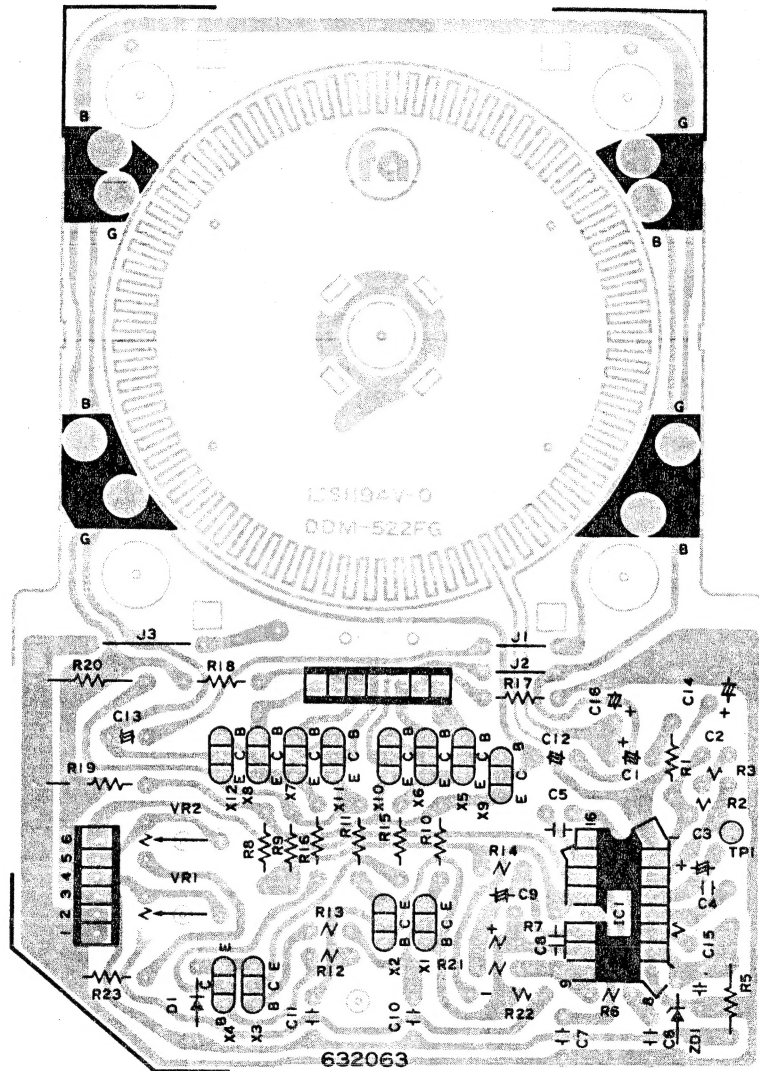


Fig. 2

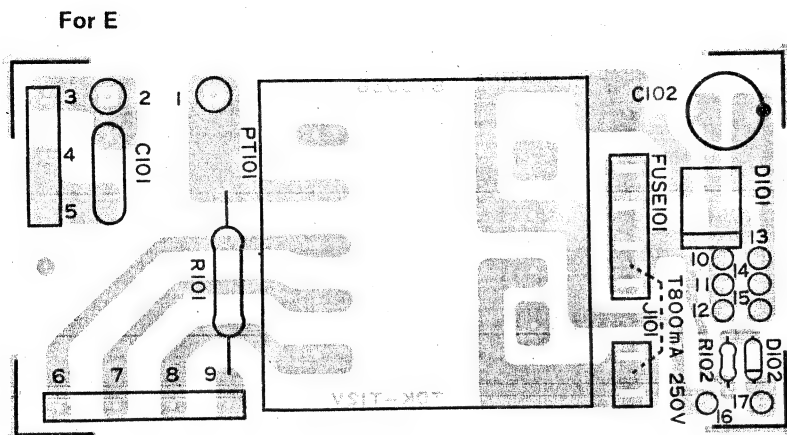
Symptom	Cause	Procedure
When reproduced sound of one channel is distorted.	<ol style="list-style-type: none"> Too light stylus force. Obliquely installed cartridge. Too effective anti-skate. 	<ol style="list-style-type: none"> Adjust the stylus force. Adjust the installation of the cartridge. Set the anti-skate to an adequate position.
When the stylus drops suddenly on the record face in cueing down.	<ol style="list-style-type: none"> Insufficient silicon oil. Too heavy stylus force. 	<ol style="list-style-type: none"> Supplement silicon oil (Use a product for 20,000 C/S (cm/stroke)). Adjust the stylus force.
Motor (continued) a) Motor Speed Change is non-existent. b) Direct Drive Motor does not rotate or speed is remarkably slow.	<ol style="list-style-type: none"> Semi-fixed resistor (VR 1 or VR 2) or external Potentiometer is defective, or improper wiring. Transformer or Rectifying circuit is defective. Hall element is defective. 	<ol style="list-style-type: none"> Check as specified in item d) 2 Motor. <ol style="list-style-type: none"> Check voltage between 3 and 2 of CNP 1 of Motor Control Circuit PCB. If 22V is not observed, replace Transformer or Rectifying circuit. Check waveform of base signal of X5, X6, X7 and X8. Waveform should be  <p>If not, hall element is defective, replace Motor Control Circuit PCB.</p> <ol style="list-style-type: none"> Check waveform of collector signal of X9, X10, X11, X12. Waveform should be  <p>If the waveform is not observed, check transistors X5, X6, X7, X8, X9, X10, X11 and X12, and replace defective one.</p> <ol style="list-style-type: none"> Check resistance of Motor Winding Wire. (between G and G, B and B) <p>Infinite resistance: Break wire 0 resistance: Short wire 105 ohm (approx.): Normal <ol style="list-style-type: none"> Check voltage between terminals GND and 10 of IC1. If 0.6V is not observed, replace IC 1. Check voltage between terminals GND and 7 of IC 1. If voltage is 0, replace ZD 1. 13V DC is observed, normal. Disconnects lead wires connected terminals 4 and 5 of CNP 1 of Motor Control Circuit PCB, then connect 4 and 5. If Motor Speed cannot be adjusted by VR1 or VR2, replace defective one. Then reconnect lead wires to terminals 4 and 5, if Motor speed can be adjusted by external Potentiometer. Replace Potentiometer, or check wiring of Speed Change Switch. </p>
c) Direct Drive Motor does not rotate.	<ol style="list-style-type: none"> Direct Drive Motor is defective 	
d) Motor runs (Motor speed is remarkably high)	<ol style="list-style-type: none"> IC 1 of Motor Control Circuit PCB is defective. Zener Diode (ZD 1) is defective. Semi-fixed resistor (VR 1 or VR 2) or external Potentiometer is defective, or improper wiring. 	

Symptom	Cause	Procedure
	<p>3. IC 1 is defective.</p> <p>4. FG pattern is defective, or IC 1 is defective.</p>	<p>3. Touch and release Direct Drive Motor Shaft by hand alternately while monitoring voltage between terminals GND and 10 of IC 1.</p> <p>If voltage does not fluctuate, replace IC 1.</p> <p>4. Check voltage between terminals GND and 3 of IC 1. Waveform should be</p>  <p>If this waveform is not observed, FG pattern or IC 1 is defective, replace IC 1 or Direct Drive Motor Control circuit PCB.</p>

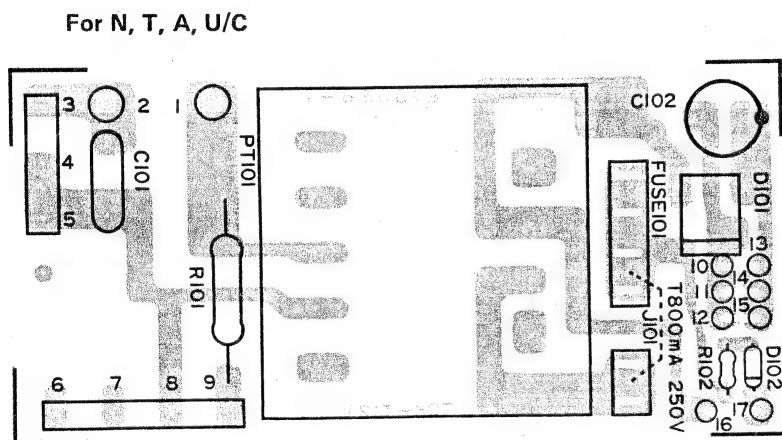
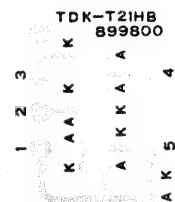
7. TOP VIEW OF P.C. BOARD
MAIN MOTOR CONTROL P.C. BOARD ASSEMBLY



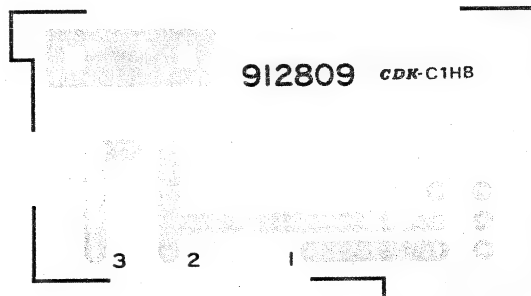
POWER SUPPLY ASSEMBLY COMPONENT P.C. BOARD



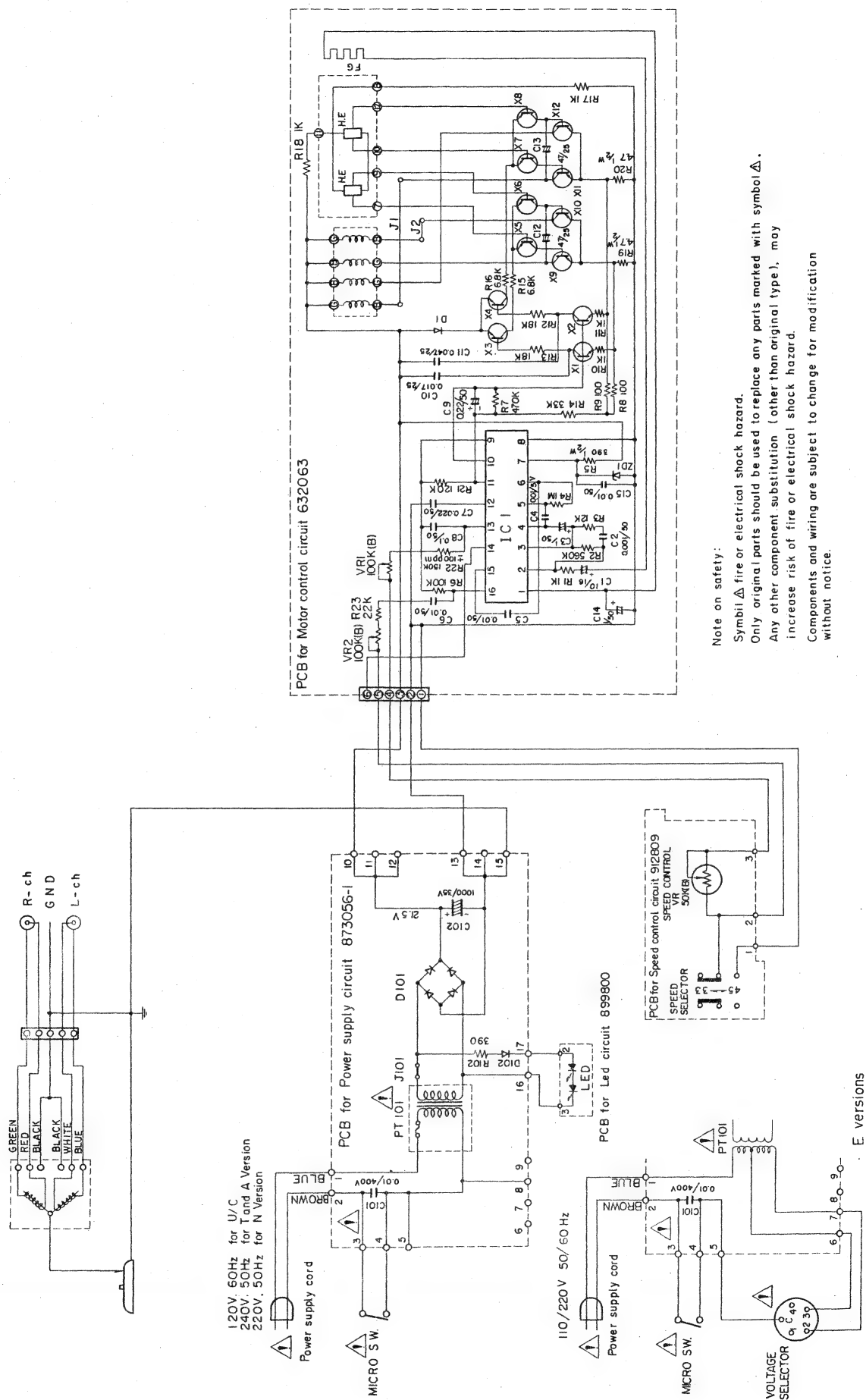
STROBE LED P.C. BOARD



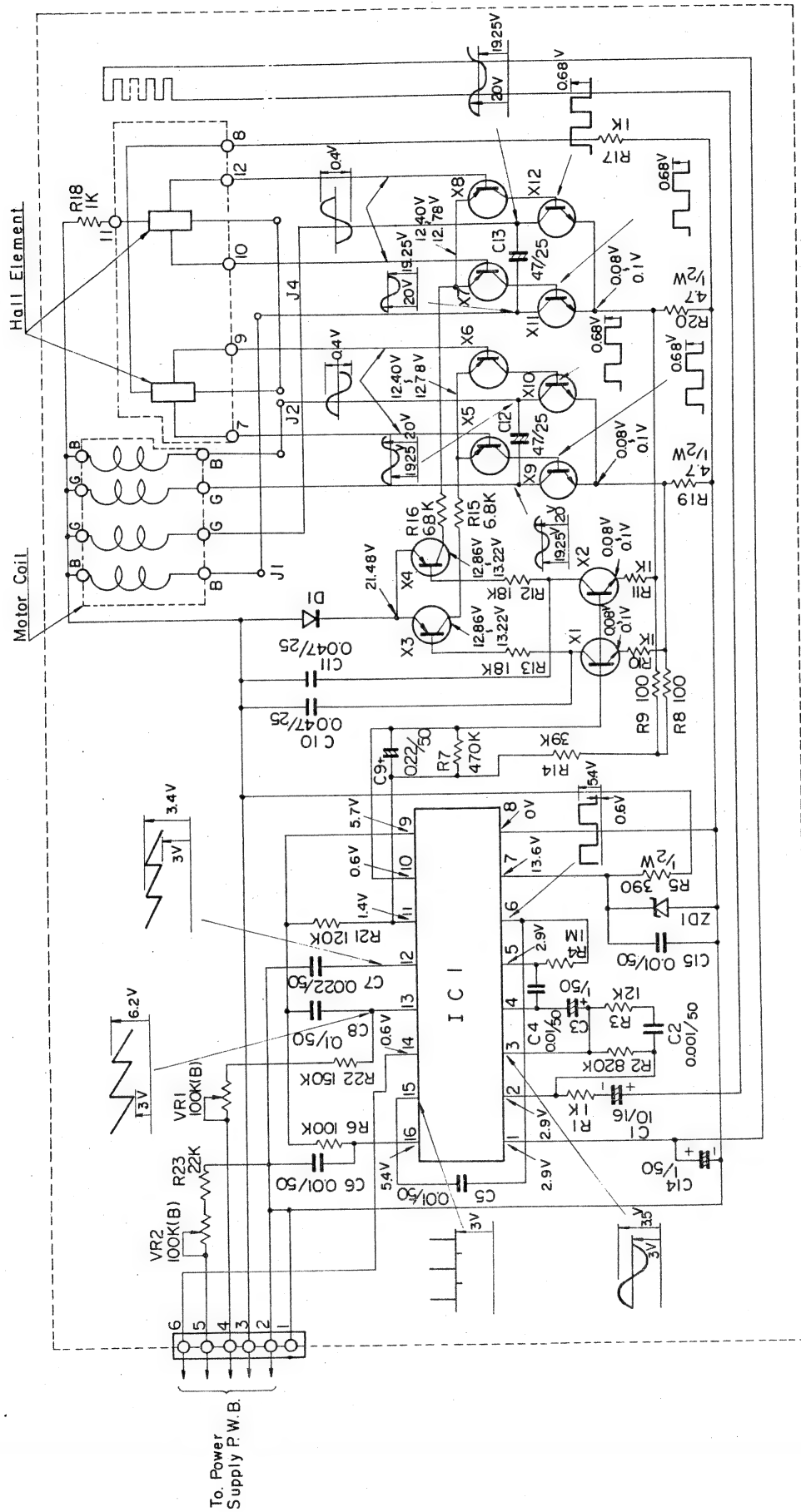
SWITCH AND VOLUME P.C. BOARD



8. SCHEMATIC DIAGRAM



9. SCHEMATIC DIAGRAM MAIN MOTOR CONTROL

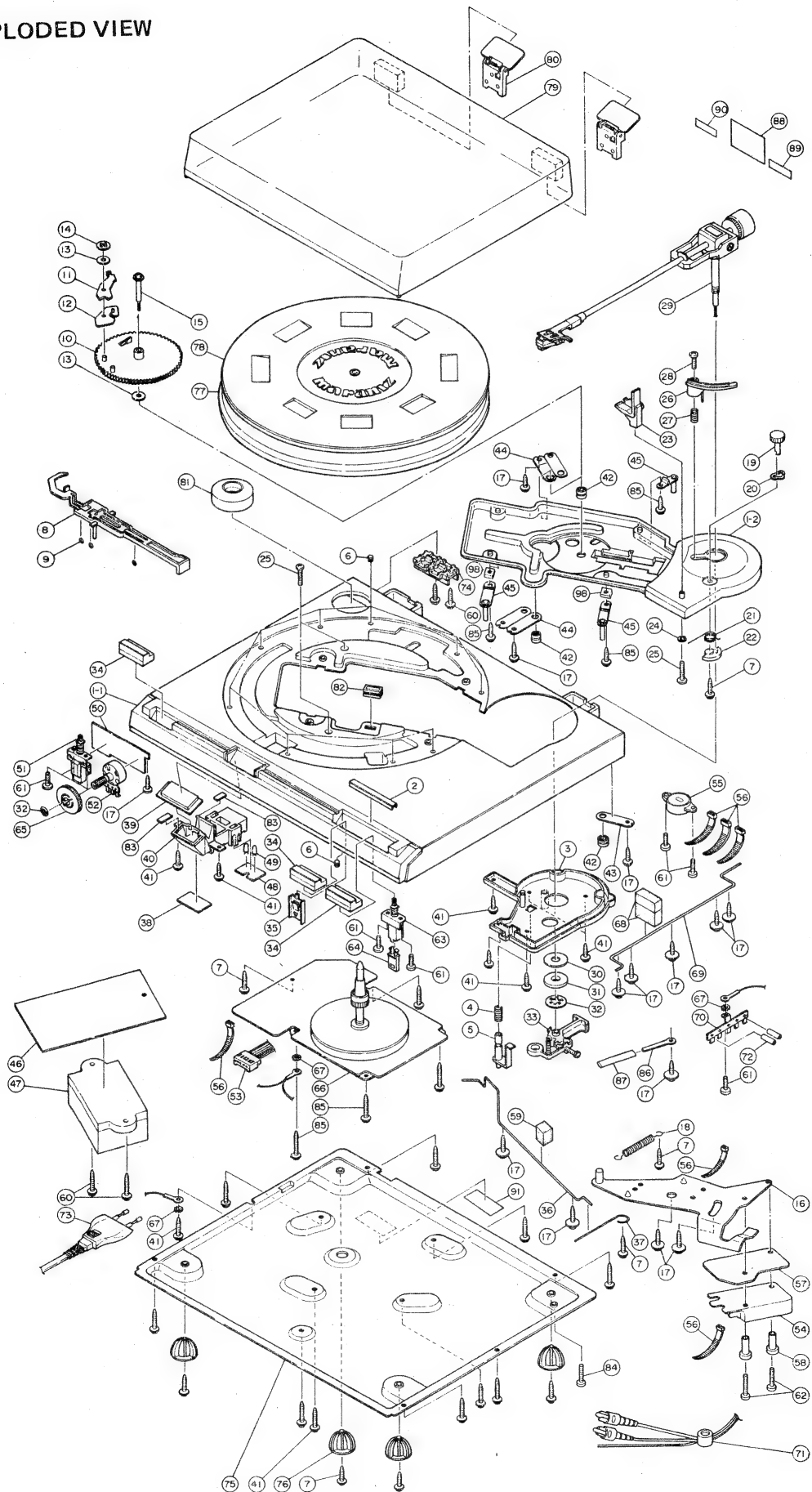


Motor Control Circuit PWB

Note: 1. Rating of resistor is 1/4 W unless otherwise specified.
2. Unit of capacitor is $\mu\text{F/V}$.
3. Wave forming are measured by Oscilloscope, and standard is 0V, unless otherwise specified.

IC 1	μPC D43C	X3~X8	2SA733(PQ) or 2SA844(C,D) or 2SA1015(Y,GR) or 2SA1175(F,E)	D1 or ZD 1	IS953 or ISS53
X 1, X2	2SC945 (PG,K) or 2SC2308 (C) or 2SC1815 (Y,GR) or 2SC2785 (F,E)	X9-X12	2SC2001(K,L) or 2SC2120(Y,GR)		RD-13E (B3)

10. EXPLODED VIEW



11. PARTS LIST

REF. DESIG.	PART NO.	QUANTITY				DESCRIPTION
		E	N	T	A U/C	
1	849.1820.nec	1	1	1	1	Cabinet case Ass'y
-1	849.1800.nec	(1)	(1)	(1)	(1)	Cabinet Case
-2	849.1810.nec	(1)	(1)	(1)	(1)	Mechanism Base
2	912.8080.nec	1	1	1	1	Decoration Plate
3	873.5520.nec	1	1	1	1	Sub-base
4	892.0841.nec	1	1	1	1	Button Spring
5	912.1910.nec	1	1	1	1	Elevation Shaft
6	912.5640.nec	10	10	10	10	Rubber Cushion
7	Y09.3008.02n	8	8	8	8	Tapping Screw + 3x8
8	873.1920.nec	1	1	1	1	Actuating Arm
9	Y99.0001.03n	3	3	3	3	Steel Ball
10	895.2480.nec	1	1	1	1	R-Gear Ass'y
11	911.5650.nec	1	1	1	1	Clutch Plate
12	911.5660.nec	1	1	1	1	Clutch Guide
13	Y63.2080.05n	2	2	2	2	Washer 3.2x8x0.5
14	Y37.0003.01n	1	1	1	1	CS-Stopper
15	899.7240.nec	1	1	1	1	Screw
16	896.4874.nec	1	1	1	1	Function Plate Ass'y
	896.4870.nec	1	1	1	1	Function Plate Ass'y
17	912.2900.nec	21	20	20	20	Tapping Screw
18	899.3980.nec	1	1	1	1	Spring
19	912.8040.nec	1	1	1	1	I.F.C. Knob
20	897.5540.nec	1	1	1	1	Wave Washer
21	912.3120.nec	1	1	1	1	I.F.C. Spring
22	897.5470.nec	1	1	1	1	I.F.C. Cam
23	911.5690.nec	1	1	1	1	Rest Ass'y
24	Y31.0003.01n	1	1	1	1	Spring Washer, SW3
25	Y10.3016.01n	3	3	3	3	Screw + 3x16
26	896.4440.nec	1	1	1	1	Elevation Plate
27	287.6800.nec	1	1	1	1	Spring
28	Y10.3012.04n	1	1	1	1	Screw + 3x12
29	852.8020.nec	1	1	1	1	Tonearm Ass'y
	852.8021.nec	1	1	1	1	
29-1	912.7510.nec	1	1	1	1	Cartridge (MM-81/II)
29-2	912.7490.nec	1	1	1	1	Stylus (MM)
29-3	852.802H.nec	1	1	1	1	Head Shell
29-4	852.802W.nec	1	1	1	1	Counter Weight

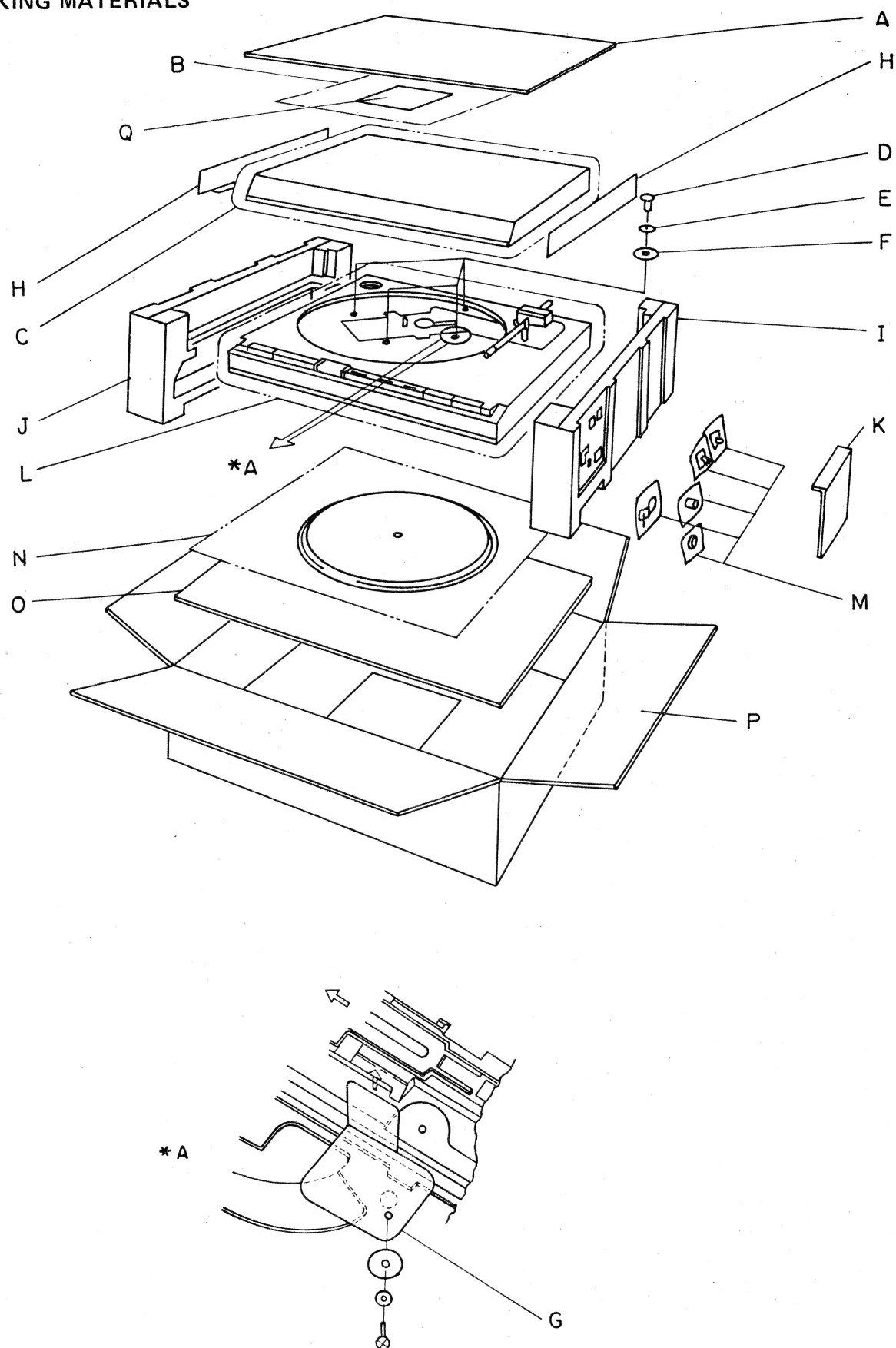
REF. DESIG.	PART NO.	QUANTITY				DESCRIPTION
		E	N	T	A U/C	
29-5	852.802Z.nec	1	1	1	1	Cartridge Screw
29-6	852.802M.nec	1	1	1	1	Tonearm Ass'y
30	Y96.0000.21n	1	1	1	1	Washer, 10x22x0.6
31	899.3992.nec	1	1	1	1	Rubber Washer
32	Y37.0010.01n	2	2	2	2	Washer, CS10
33	910.9601.nec	1	1	1	1	Feed Arm Ass'y
34	912.8060.nec	3	3	3	3	Button
35	911.0380.nec	1	1	1	1	Button Guide
36	912.9500.nec	1	1	1	1	Reject Spring
37	911.5670.nec	1	1	1	1	Spring
38	898.5293.nec	1	1	1	1	Mirror
39	912.2850.nec	1	1	1	1	Strobe Window
40	873.5530.nec	1	1	1	1	Mirror Case
41	Y09.3010.02n	18	18	18	18	Screw, washer based type + 3x10
42	912.4820.nec	3	3	3	3	Rubber Cushion
43	912.3142.nec	1	1	1	1	Spring
44	912.3140.nec	4	4	4	4	Spring
45	912.1891.nec	4	4	4	4	Lock Plate
						POWER SUPPLY CIRCUIT BOARD
46	873.0560.nec	1				Power Supply PCB Ass'y
	873.0561.nec	1	1	1	1	PCB
R102	Z40.5026.3ne	1	1	1	1	Resistor Carbon 390H 5% 1/4W
C101	899.299-2.nec	1	1	1	1	Capacitor
C102	Z40.8041.5ne	1	1	1	1	Electric Capacitor 35V 1000μF
D101	Z41.1006.1ne	1	1	1	1	Diode S1WB-10
D102	Z41.1001.3ne	1	1	1	1	Diode F14(C) or,
J101	704.8454.nec	1	1	1	1	Jumper Wire L15
	704.9070.nec	1	1	1	1	Terminal
	704.9071.ne	1				Terminal
47	873.5730.nec	1				Transformer
	872.8780.nec	1				Transformer
	872.7290.nec	1	1	1	1	Transformer
48	899.8000.nec	1	1	1	1	LED Circuit Board
49	899.9080.nec	2	2	2	2	LED (AA-5534S)
50	912.8090.nec	1	1	1	1	Control Circuit Board
51	911.5900.nec	1	1	1	1	Push Switch
52	911.3862.nec	1	1	1	1	Volume
53	910.2504.nec	1	1	1	1	Connector Ass'y
54	870.2700.nec	1	1	1	1	Micro Switch

REF. DESIG.	PART NO.	QUANTITY				DESCRIPTION
		E	N	T	A U/C	
55	898.2563.nec	1				Switch
56	894.4080.nec	10	8	9	8 4	Wire fastener
57	893.3270.nec	1	1	1	1	Insulation Sheet
58	911.3700.nec	2	2	2	2	Bush
59	890.7311.nec	1	1	1	1	Foamed Rubber
60	Y09.3016.02n	4	4	4	4	Screw, washer based type, + 3x8
61	Y10.3008.01n	7	5	5	5	Screw, + 3x8
62	Y01.2018.01n	2	2	2	2	Screw, + 2x18
63	912.9520.nec	1	1	1	1	Push Switch
64	912.8070.nec	1	1	1	1	Cueing Holder
65	912.1951.nec	1	1	1	1	Volume Knob
	W03.2340.92n	1	1	1	1	Wire UL1007 #24
	W03.0340.92n	1	1	1	1	Wire UL1007 #24
	W03.0375.72n	1	1	1	1	Wire UL1007 #24
	W03.0330.82n	1	1	1	1	Wire UL1007 #24
	W03.0125.72n	1	1	1	1	Wire UL1617 #22
	W42.9315.24n	1	1	1	1	Wire UL1617 #22
	W42.2175.24n	1				Wire UL1617 #22
	W42.9185.24n	1				Wire UL1617 #22
	W42.6185.24n	1				Wire UL1617 #22
MOTOR CONTROL CIRCUIT BOARD						
66	632.1690.02n	1	1	1	1	Motor DDM-522F-30
IC1	632.0630.nec	1	1	1	1	PCB
X1	Z41.2002.1ne	1	1	1	1	IC MPC1043C
X2	Z41.0410.2ne	1	1	1	1	Transistor 2SC945P or,
X3	Z41.0410.2ne	1	1	1	1	Transistor 2SC945P or,
X4	Z41.0010.2ne	1	1	1	1	Transistor 2SA733P or,
X5	Z41.0010.2ne	1	1	1	1	Transistor 2SA733P or,
X6	Z41.0010.2ne	1	1	1	1	Transistor 2SA733P or,
X7	Z41.0010.2ne	1	1	1	1	Transistor 2SA733P or,
X8	Z41.0010.2ne	1	1	1	1	Transistor 2SA733P or,
X9	Z41.0429.2ne	1	1	1	1	Transistor 2SC2001K or,
X10	Z41.0429.2ne	1	1	1	1	Transistor 2SC2001K or,
X11	Z41.0429.2ne	1	1	1	1	Transistor 2SC2001K or,
X12	Z41.0429.2ne	1	1	1	1	Transistor 2SC2001K or,
D1	Z41.1010.1ne	1	1	1	1	Diode 1SS53 or,
ZD1	Z41.1212.4ne	1	1	1	1	Diode RD13E (B3)

REF. DESIG.	PART NO.	QUANTITY				DESCRIPTION
		E	N	T	A U/C	
C1	Z40.8020.1ne	1	1	1	1	Electric Capacitor 16V 10 μ F
C2	Z40.8361.3ne	1	1	1	1	Ceramic Capacitor 50V K 1000pF
C3	Z40.8050.5ne	1	1	1	1	Electric Capacitor 50V 1.0 μ F
C4	Z40.8382.5ne	1	1	1	1	Ceramic Capacitor 50VZ 0.01 μ F
C5	Z40.8211.3ne	1	1	1	1	Mylar Capacitor 50V K 0.01 μ F
C6	Z40.8211.3ne	1	1	1	1	Mylar Capacitor 50V K 0.01 μ F
C7	Z40.8211.7ne	1	1	1	1	Mylar Capacitor 50V K 0.022 μ F
C8	Z40.8202.5ne	1	1	1	1	Mylar Capacitor 50V J 0.1 μ F
C9	Z40.8050.1ne	1	1	1	1	Electric Capacitor 50V 0.22 μ F
C10	Z40.8353.3ne	1	1	1	1	Ceramic Capacitor 25VZ 0.04 μ F
C11	Z40.8353.3ne	1	1	1	1	Ceramic Capacitor 25VZ 0.047 μ F
C12	Z40.8601.9ne	1	1	1	1	Electric Capacitor 25V 47 μ F (BP) or,
C13	Z40.8601.9ne	1	1	1	1	Electric Capacitor 25V 47 μ F (BP) or,
C14	Z40.8050.5ne	1	1	1	1	Electric Capacitor 50V 1.0 μ F S
C15	Z40.8382.5ne	1	1	1	1	Ceramic Capacitor 50VZ 0.01 μ F
VR1	Z40.6000.3ne	1	1	1	1	Resistor 100K (B) VZ083L1 or,
VR2	Z40.6000.3ne	1	1	1	1	Resistor 100K (B) VZ083L1 or,
R1	Z40.5047.3ne	1	1	1	1	Resistor Carbon 1.0K 5% 1/4W
R2	Z40.5033.9ne	1	1	1	1	Resistor Carbon 560K 5% 1/4W
R3	Z40.5029.9ne	1	1	1	1	Resistor Carbon 12K 5% 1/4W
R4	Z40.5034.5ne	1	1	1	1	Resistor Carbon 1.0M 5% 1/4W
R5	Z40.5443.2ne	1	1	1	1	Resistor M-OX 390H 5% 1/2W
R6	Z40.5032.1ne	1	1	1	1	Resistor Carbon 100K 5% 1/4W
R7	Z40.5033.7ne	1	1	1	1	Resistor Carbon 470K 5% 1/4W
R8	Z40.5044.9ne	1	1	1	1	Resistor Carbon 100H 5% 1/4W
R9	Z40.5044.9ne	1	1	1	1	Resistor Carbon 100H 5% 1/4W
R10	Z40.5047.3ne	1	1	1	1	Resistor Carbon 1.0K 5% 1/4W
R11	Z40.5047.3ne	1	1	1	1	Resistor Carbon 1.0K 5% 1/4W
R12	Z40.5030.3ne	1	1	1	1	Resistor Carbon 18K 5% 1/4W
R13	Z40.5030.3ne	1	1	1	1	Resistor Carbon 18K 5% 1/4W
R14	Z40.5030.9ne	1	1	1	1	Resistor Carbon 33K 5% 1/4W
R15	Z40.5049.3ne	1	1	1	1	Resistor Carbon 6.8K 5% 1/4W
R16	Z40.5049.3ne	1	1	1	1	Resistor Carbon 6.8K 5% 1/4W
R17	Z40.5047.3ne	1	1	1	1	Resistor Carbon 1.0K 5% 1/4W
R18	Z40.5047.3ne	1	1	1	1	Resistor Carbon 1.0K 5% 1/4W
R19	Z40.5800.2ne	1	1	1	1	Resistor Carbon 4.7H 5% 1/2W
R20	Z40.5800.2ne	1	1	1	1	Resistor Carbon 4.7H 5% 1/2W
R21	Z40.5032.3ne	1	1	1	1	Resistor Carbon 120K 5% 1/4W
R22	Z40.5332.5ne	1	1	1	1	Resistor META 150K 1% 1/4W
R23	Z40.5050.5ne	1	1	1	1	Resistor Carbon 22K 5% 1/4W

REF. DESIG.	PART NO.	QUANTITY					DESCRIPTION
		E	N	T	A	U/C	
CNP1	704.8450.nec	1	1	1	1	1	Jumper Wire 0.6x10L
	Z42.6003.13n	1	1	1	1	1	Connector Post
	706.3550.nec	1	1	1	1	1	PCB Ass'y
	Y41.0003.02n	3	3	3	3	3	Washer
	890.4327.nec	2	2	2	2	2	Spacer
	912.9510.nec	1	1	1	1	1	Cueing Rod
	890.9790.nec	1	1	1	1	1	5P Lug. Terminal
	871.4742.nec	1	1	1	1	1	Grounding Wire Ass'y
	U06.3001.41n	2	2	2	2	2	Vanished Tube 3x14L
	895.6172.nec	1	1				Power Supply Cord Ass'y
	870.9130.nec	1					Power Supply Cord Ass'y
				1			
	898.5501.nec	1	1	1	1	1	Cord Holder
	852.7990.nec	1	1	1	1	1	Bottom Lid
	892.2270.nec	4	4	4	4	4	Foot
	620.0790.nec	1	1	1	1	1	Turntable Platter
	871.5581.nec	1	1	1	1	1	Turntable Sheet
	852.6630.nec	1	1	1	1	1	Dustcover
	911.5644.nec	2	2	2	2	2	Hinge Ass'y
	898.3400.nec	1	1	1	1	1	EP Adaptor
	912.9530.nec	1	1	1	1	1	Rubber Bush
	912.9540.nec	2	2	2	2	2	Spacer
	Y10.3022.03n	1	1	1	1	1	Screw + 3x22
	Y09.3012.02n	8	8	8	8	8	Screw + 3x12 ZBC
	890.7550.nec	1	1	1	1	1	Lug Terminal
	U01.3306.02n	1	1	1	1	1	UL Tube 3.3x60L
	912.9550.nec	1					Rating Label
	912.8551.nec	1					Rating Label
				1			
	912.9554.nec	1					Rating Label
	911.0140.nec	1	1	1			Japan Label
	892.6740.nec	1	1	1	1	1	Serial No. Label
	893.3890.nec	1	1	1	1	1	Caution Label
	913.2070.nec	4	4	4	4	4	Cushion

12. PACKING MATERIALS



REF. DESIG.	PART NO.	QUANTITY					DESCRIPTION
		E	N	T	A	U/C	
A,H,K, O & P A,H,K, O & P	852.8010.nec	1	1	1	1	1	Packing Case with reinforcement (1 pc each A, O & P, 2 pcs each H & K) Packing Case with reinforcement (1 pc each A, O & P, 2 pcs each H & K)
B	Z63.2303.4ne	1	1	1	1	1	Polyethy Bag, 230 x 320 L
C	913.3840.nec	1	1	1	1	1	Foamed Plastic Bag
D	Y08.4030.04n	4	4	4	4	4	Transportation Screw $\pm 4 \times 30$
E	Y64.2120.08n	4	4	4	4	4	Washer, Iron 4.2 x 12 x 0.8
F	890.8160.nec	4	4	4	4	4	Caution Tag
G	913.1820.nec	1	1	1	1	1	Protection Paper
I	852.800R.nec	1	1	1	1	1	Cushion
J	852.800L.nec	1	1	1	1	1	Cushion
L	891.264-1.nec	1	1	1	1	1	Foamed Plastic Sheet
M	Z63.0701.20n	5	5	5	5	5	Polyethy Bag, 70 x 120 L
N	Z63.3405.70n	1	1	1	1	1	Polyethy Bag, 340 x 570 L
Q	913.3580.nec	1	1	1	1	1	Instruction Manual



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